markets--and for those customers--for which explicit competition or the possibility of self-supply provide inadequate ability to substitute away from LEC offerings.

Finally, it is important to keep in mind that a well-designed pricing flexibility plan will provide substantial benefits. Current carrier access prices were largely determined through regulatory procedures and are unrelated to economic costs. As competition comes to LEC wire centers, restrictions on a LEC's pricing flexibility that prevent it from lowering prices can eviscerate the benefits that competition and expanded interconnection were designed to bring. Without pricing flexibility, a policy that encourages entry will merely redistribute the contribution embedded in the LECs' regulated rates among different services and among old and new market participants. LEC pricing will not send efficient signals, and, as a consequence, resources will not be allocated efficiently.

IV. Proposed Criteria for Pricing Flexibility

The heart of the USTA proposal is the set of criteria under which a geographic area would be classified as an initial market area (IMA), a transitional market area (TMA) or a competitive market area (CMA). A wire center would be classified as a TMA if a competitor were present that could provide substitute carrier access services or if expanded interconnection were present.[24] A TMA wire center would be classified as a CMA if it meets both of the following criteria:

[24]This definition follows the FCC's example in determining when additional pricing flexibility would be warranted. In the Special Access Order (at ¶ 179, footnote 411), the Commission permitted zone density pricing whenever "an interconnector has taken the expanded interconnection cross-connect element...We believe that this is a reasonable point for permitting implementation of additional LEC pricing flexibility since the interconnector will first become able to serve customers when they take the cross connect."

(i) a sufficiently large portion of the customer demand in the wire center has an alternative source of supply available, and

(ii) a sufficiently large number of customers are actively seeking alternative sources of supply through solicitation of bids or construction of their own facilities.

A TMA wire center would receive limited additional pricing flexibility: price changes for individual TMA categories would have an annual upper limit of 5 percent and a lower limit of 15 percent, adjusted for the change in the price cap index (PCI).[25] In addition, LECs would be permitted to respond to a request for proposal (RFP) with a contract designed to meet the specific requirements of the customer.[26] Prices in CMA wire centers would no longer be subject to the price cap rules but would remain regulated as Title II communications services. Contract-based pricing would be permitted in a CMA. Prices and quantities in both TMA and CMA wire centers would be removed from the service band index (SBI) calculations for services provided in IMAs to avoid cross-subsidy. Specifically, the TMA wire centers, still regulated by price caps, would have a SBI separate from the IMAs, and CMA wire centers would be removed from price cap regulation, thus eliminating any SBI requirements.

A. Scope of the Proposal

The proposed pricing plan addresses several shortcomings of the current Part 69 pricing rules: (i) prices must be permitted to vary across geographic markets that are very different, (ii) prices cannot be set for services without taking into account the ability of telecommunications facilities to provide many different services, and (iii) pricing flexibility is necessary for small LECs and for non-price-cap-regulated LECs in competitive circumstances.

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[25]Upper and lower bands for the IMAs would be +5 and -10 percent respectively.

[26]Of course, the contracted service would also be available to other similarly situated customers; LECs are not given the ability to discriminate.

1. Geography

The USTA proposal adopts current LEC wire centers as the market areas for analysis.[27] That is, competition is determined to be either sufficient or insufficient to warrant pricing flexibility for all of a wire center or for none of a wire center. To determine whether or not competitive conditions adequately protect against market power to warrant the requested pricing flexibility, we need to ascertain whether or not LEC wire centers correspond to relevant geographic markets and--if not--what the consequences would be if wire centers were used for analysis when the economic market were actually larger or smaller.

The DOJ Merger Guidelines provide a clear definition of the geographic component of an economic market for antitrust and merger analysis:

> "the geographic market [is] a region such that a hypothetical monopolist that was the only present or future producer of the relevant product at locations in that region would profitably impose at least a "small but significant and nontransitory" increase in price, holding constant the terms of sale for all products produced elsewhere"[28]

The idea is to determine what would happen if all producers of a product in a given geographic area were to raise their price (presumably from the competitive level). If products produced at locations outside the region were sufficiently attractive (at current prices) so that the attempt to raise prices decreased demand enough to be unprofitable, then the initial geographic area was drawn too narrowly. In essence, the definition seeks a geographic distance from a given set of producers sufficiently far that customers will not purchase services in quantity from the distant providers in response to a local price increase.

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[27]The USTA proposal allows for competitive analysis to be performed for a single wire center, or for a larger area, such as a group of wire centers. For purposes of discussion in this paper, we will use the term "wire center" to mean the serving area of one or more wire centers.

[28]U.S. Department of Justice and Federal Trade Commission, "Horizontal Merger Guidelines," April 2, 1992, p. 16.

While this idea is sensible for the cement market, it is awkward in its application to telecommunications services. Carrier access service must connect an interexchange carrier and an end user at their existing locations: close is not good enough because customers are loath to walk across the street to originate and terminate long distance calls. And whether or not it is economical to connect a customer location to an alternative carrier access provider depends on both the distance and the volume of traffic. Thus it is probably not useful to perform a geographic market analysis by starting with the city center and asking whether or not the sole provider of service in circles with larger and larger diameters could profitably raise its price above the competitive level.[29] For telecommunications services, it appears easier to perform the analysis in the opposite direction: that is, to start with the collection of customers who have sufficient choices available that they can substitute away from the LEC's services in the event of a price increase. In effect, the analysis begins with a map of the networks of alternative service providers and interexchange carriers and identifies customers (and their associated volumes of demand) that are sufficiently close (given their size) that an economic alternative to LEC carrier access service exists.

A geographic market so defined would not correspond to any particular geographic area in the LEC's network, and this approach would accordingly be expensive or impossible to implement. These market areas are determined by the density of customer demands, and while the LEC network may have located its wire centers to serve areas of high demand efficiently, (i) current and future locations may differ from those chosen in the past, and (ii) the efficient sizes and locations for LEC wire centers serving all traffic are not necessarily efficient for serving carrier access traffic alone.[30] For example, a large building in a metropolitan area--or an office park in a rural area--

[29]If the firm were the sole provider to any single customer, it could profitably raise its price to that customer and the propinquity of other providers would not constrain it.

[30]Because the bulk of traffic at a LEC switch is local usage, the configuration of the wire center is determined primarily by the characteristics of local usage rather than of toll or carrier access.

may have sufficient demand by itself to warrant direct connections to interexchange carriers even though few other customers in the corresponding wire center might have such a choice. But defining sub-wire-center areas for regulatory purposes would be inherently difficult and time-consuming, and LEC competitors would have both the interest and ability to lengthen the process so as to delay LEC competitive responses. For practical purposes, then, the LEC wire center is the smallest possible geographic area to which market power analysis can practically be applied.[31] Because the wire center is the smallest appropriate geographic area, the scope of possible price discrimination against customers without competitive alternatives is made as small as possible.

While use of the LEC wire center to determine a geographic market represents a reasonable practical implementation of the concept of a geographic economic market, there are some limitations that this analysis imposes. First, it treats what is likely to be a heterogeneous area as homogeneous. If a LEC wire center is predominantly competitive, treating the entire wire center as competitive could expose customers who have no competitive alternatives to the dangers of LEC pricing flexibility. However, the presence of LEC average rates to IXCs in CMAs, coupled with IXC rate averaging across customers in a CMA limits the exposure of individual customers to serious price discrimination. At the same time, predominantly noncompetitive wire centers may have pockets of demand whose volume is sufficient to warrant connection to an existing CAP or IXC network. For that reason, the choice of the wire center for competitive analysis limits the risk of price discrimination to the greatest extent possible.

[31] In the future, however, the market area designation may need to be changed to reflect changes in the industry. As cable networks or networks of radio transmitters are overlaid on the LEC network, the LEC wire center will become less useful as an area for competitive market analysis. The geographic scope of economic markets for services will be determined partly by the geometry of the competing CAP, IXC, cable, PCS and cellular networks, and these markets can easily overlap existing LEC wire centers. Indeed, PCS and cable networks may provide ubiquitous service in the future so that a tight focus on the geographic reach of the CAP network may be unnecessary to determine whether or not individual customers have choices in paths by which to reach the IXCs' networks.

Second, the immobility of LEC wire centers would permit CAPs and IXCs to game the system as they expand their networks and determine in which wire centers they will interconnect or collocate. An entrant might be reluctant to build facilities in a marginal wire center where such construction could tip the wire center from a TMA to a CMA and invite a competitive response from the LEC. Indeed, if an estimate of traffic that can economically reach CAP or IXC facilities is used to implement this plan, entrants will have different incentives to build facilities rather than resell LEC local exchange services.

Third, the geographic distribution of demand within a wire center is important in ascertaining whether or not sufficient customers have alternatives that the LEC can be permitted pricing flexibility. To a first approximation, the capacity of a recently-installed optical fiber cable is limitless: by adding and modifying the electronics at either end of the cable, almost any conceivable amount of future demand can be satisfied. To measure the proportion of customers (weighted by demand) that can substitute away from LEC access in response to a price increase, we will have to measure demand from customers who have competitive alternatives to make substitution possible.

2. Services

If a customer connects to an interexchange carrier either directly or through a CAP, all long distance traffic would presumably flow through that connection. Once the facility is in place, the incremental costs of traffic are slight, and it would almost always pay the customer to send jurisdictionally intrastate traffic, interstate traffic, switched and dedicated traffic, and--if possible--originating and terminating traffic through that facility. As a result, it is not practical to restrict our view of the market to interstate carrier access traffic, even though the pricing flexibility that will be implemented--if the wire center is found to be sufficiently competitive--is for interstate carrier access traffic only. For practical purposes the range of substitutable services includes all interstate access

services. Therefore, when analyzing the geographic market, it does not make sense to restrict the range of services or subsets of services (e.g., switched access v. special or DS1 v. DS3) to be considered.

Ultimately, what determines whether or not a wire center is competitive is the presence of competitors' (CAPs', IXCs', PCS and cable providers') networks. Once present, those networks can be used to provide any desired set of services. The services currently provided do not provide sufficient guidance as to the scope and volume of services that can be provided in response to a change in LEC prices.

3. Non-Price Cap LECs

The USTA proposal also provides limited pricing flexibility to smaller LECs that have chosen not to implement price cap regulation. Those carriers regulated under optional incentive regulation would have bands of ± 10 percent in IMAs expanded to + 10 and -20 percent (on a biennial basis) in a TMA. In CMAs, prices of non-price cap LECs' interstate access services would be constrained by market forces; and they would continue to be regulated as Title II communications services. Contract-based tariffs would be permitted for all CMA services. In a TMA, traditionally regulated LECs could choose between (i) a banding scheme (or set of banding constraints) similar to those for optional incentive regulated companies, or (ii) a banding scheme in which individual rate elements could increase by 5 percent per year and decrease without limit subject to the restriction that price changes could not cause revenue for an access category to exceed its revenue requirement, taken from the LEC's most recent annual or biennial filing and evaluated at the demand used in that filing. All non-price cap LECs serving TMAs would be allowed to respond to RFPs, and prices and quantities from such contracts would not be used to calculate revenue requirements for setting non-contract prices in IMAs and TMA areas. In recognition of the special circumstances of small carriers, USTA proposes that non-Tier 1 LEC wire centers contiguous to Tier 1 LEC TMAs and

CMAs be assigned to the same classification as the Tier 1 LEC wire center if the non-Tier 1 LEC so desires.

B. The TMA Criteria

Classification as a TMA recognizes the presence of competition in a market area but implies no presumption that competitive forces can adequately prevent exploitation of market power or anticompetitive pricing. A TMA would be subject to reduced regulatory oversight, principally in the form of greater--but still restricted--pricing flexibility. Prices could move up or down within an expanded band, and the LEC would be permitted to respond to a customer's request for an individual proposal. All carrier access services originating or terminating in a TMA-designated wire center would be accorded reduced regulatory oversight, because transport and switching capacity can easily be repackaged to provide whatever access service a customer requires. Under the USTA proposal, such pricing flexibility would be permitted in any wire center in which competitive carrier access services were available or in which expanded interconnection options had been exercised.

In this section, we ask whether the degree of pricing flexibility made available to the LEC in a TMA could threaten any of the Commission's regulatory objectives. In effect, we ask whether or not the possible costs of additional pricing flexibility for LECs could outweigh the possible benefits of additional pricing flexibility in response to competition in a TMA.

1. Market power, price discrimination, and anticompetitive conduct

Once a wire center is classified as a TMA, the prices and quantities of services sold under contract are removed from calculations of the SBI[32] and API (for price-cap-regulated firms) or from the applicable revenue requirement (for non-price-cap-regulated firms). Thus reducing

[32]The subindices in a basket proposed by the USTA petition are called market area band indices, which are functionally equivalent to the SBIs in price cap regulation.

prices to customers who have competitive alternatives cannot result in higher prices for customers in the same TMA (or in any other TMA or IMA) who do not have such alternatives. The additional pricing flexibility provided in a TMA thus does not increase the ability of the LEC to subsidize carrier access services in competitive areas at the expense of carrier access customers in less-competitive areas. Instead, the additional pricing flexibility provides the pro-competitive ability to meet competitors' low prices and customers' individual needs while retaining as much contribution to fixed and common costs as possible from those customers who have competitive alternatives.

While the pricing flexibility requested in the proposal does--on its face--increase the LECs' ability to charge different customers different prices for the same service (albeit under different market circumstances and, generally, different costs), it does not lead to inefficient price discrimination. The emerging competitive market will determine--on the basis of costs and demands--the price that each customer will pay for carrier access service. Thus, regulating the LECs' prices (and not the CAPs') will not prevent competitive market forces from determining market prices. It will, of course, determine which competitor will actually sell services. Indeed, even if the Commission price-regulated CAPs, it could not enforce rate averaging over geography or over customer sizes or types. In this case, the FCC could ensure reasonable rates, but not exact rate uniformity in the diverse areas the CAPs serve. Even the price at which supply takes place may not be as low as it could be because of the pricing umbrella the CAPs would continue to enjoy if the LECs do not have additional pricing flexibility. The IXCs can effectively deaverage carrier access prices to large customers or in urban areas by choosing where to interconnect with the LEC, which facilities to purchase, and which facilities to self-supply. The amount of price variation and price deaveraging under the USTA proposal would not differ significantly from the variation that is currently emerging from the switched and special access interconnection Dockets. The major difference would be that the additional pricing flexibility requested in the USTA proposal would

mean that LECs could continue to provide carrier access service in those areas where they were the low cost providers.

Because price reductions in a TMA cannot be recouped by raising prices indiscriminately elsewhere, there is no additional cost of anticompetitive behavior that could result from classifying any wire center as a TMA. If there truly were no competitors in the wire center--and no expanded interconnection were available to encourage CAP entry and IXC expansion--then, at worst, the additional pricing flexibility would be superfluous. The LEC would have no competitive need to reduce prices to large business customers, and if it did so, it would be unable to recover the lost revenue from price increases in other areas or to other customers.

2. Speed

In the USTA proposal, TMA classification is triggered automatically by the presence of a competitor in the wire center or by the purchase of expanded interconnection. Either event is indisputable evidence that competition is possible in the wire center. Neither event suggests--necessarily--that any particular competitor may succeed or that competitors in general will ever supply a significant fraction of demand. However, these events do signal the start of competition, and it is when competition starts--not when competitors succeed--that the incumbent firm must be able to adjust its prices and products to the new environment. Otherwise, if LEC prices remain significantly above competitive levels, entrants will receive false signals and will make incorrect calculations about their ability to supply services in particular wire centers after LECs finally reduce prices towards costs to respond.

This fact is particularly important in the carrier access market because it is a market for an intermediate good, purchased almost entirely by a small number of customers (primarily, the three large interexchange carriers) who are experienced purchasers of access and are solely concerned with the price and quality of the service provided. As described in the FCC Staff Analysis:

> "Some argue that the extent of exchange access competition can change quickly given the demand characteristics of the market. That is, unlike the interexchange market, where demand is spread over many customers, the switched access market is much more concentrated with about sixty percent of switched access demand controlled by one IXC customer and about ninety percent controlled by the top three IXC customers. Parties contend that as a result, demand can shift very quickly from the LECs to their competitors." (p. 31).

It does little good to offer the incumbents the ability to respond to competition in such a market only after new fiber capacity has been placed, since entrants could then pick off desirable customers in advance and negotiate long-term contracts while even a lower-cost LEC is unable to compete. Such requirements were noted by the New York Public Service Commission in its orders requiring New York Telephone to file collocation tariffs, where it explicitly granted pricing flexibility for high capacity, interoffice, and other private lines, and for intrastate switched access services on a wire center basis.[33] The flexibility requested in the USTA proposal is similar to that granted in the interexchange market by the FCC, where AT&T was permitted to respond to competition by negotiating contract-based tariffs with individual customers.[34]

3. Benefits

The above analysis shows that no costs are likely to be incurred from the implementation of the proposed limited pricing flexibility in a TMA. There are, however, clear benefits that customers would be denied under current access charge and price cap rules.[35] Geographic

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[33]New York Public Service Commission, Case Nos. 29469 (Opinion No. 89-12, May 16, 1989 and Order Approving New York Telephone Physical Collocation Tariffs, May 8, 1991) and 28425 (Opinion No. 92-13, May 29, 1992).

[34]Report and Order in CC Docket No. 90-132, 6 FCC Rcd 5880 (1991).

[35]Even the flexibility granted in the FCC's zone density pricing plan for special access is limited. It only provides flexibility based on zone density, not based on competition. Furthermore, once the zones are created the rates within a zone are not allowed to deviate from one another, and the ability to adjust price continues to be regulated by price cap rules. Thus the fundamental difference is that three separate rate elements exist where previously there was one.

averaging of prices across urban competitive wire centers and rural non-competitive wire centers creates losses in both technical and allocative economic efficiency. Economists distinguish between technical efficiency (which requires that output be produced using the lowest-valued set of inputs) and allocative efficiency (which requires that relative prices of outputs reflect their relative incremental cost of production).[36] Because access prices deviate from costs, customers receive improper signals regarding the appropriate amounts and proportions of different access services--and different technologies--to consume. For example, allocative efficiency is diminished when customers choose dedicated forms of access rather than switched because the markup of price over incremental cost is higher for switched access than for special. Technical efficiency also suffers when prices deviate from costs because potential entrants receive incorrect signals regarding their ability to compete successfully in the market and goods are not produced at the lowest cost. In either case, an important function of the competitive process--allocating scarce resources to their highest-valued use--is frustrated.

Technical (or first-order) efficiency means that goods must be produced using the lowest cost technology. The terms "first-order" and "second-order" efficiency refer to the likely magnitude of efficiency losses. If goods and services are produced at higher than minimum cost, efficiency is lost on every unit that is produced. Second-order efficiency losses occur only on the marginal quantities stimulated or repressed by setting prices too low or too high relative to marginal cost. As the Commission pointed out in the Switched Collocation Order:[37]

> "If pricing flexibility were delayed for too long, however, the full benefits of competition would be delayed, and false economic signals sent to new entrants."

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[36] In other words, technical efficiency requires that whatever outputs are produced, no resources are wasted in producing them. Allocative efficiency determines whether the proper set of outputs is produced in the first place.

[37] Phase I Order at ¶ 92.

Preventing the incumbent LEC from lowering prices towards incremental costs establishes a price umbrella which reduces economic efficiency in two ways.[38] Since price will exceed the LEC's incremental cost, allocative efficiency will be lost. But, more significantly, higher-cost firms can enter and survive under the price umbrella, directly reducing first-order technical efficiency.[39] Thus the principal benefit to be expected from pricing flexibility in competitive carrier access markets is that market forces will determine which firms provide what services to particular customers. Without downward pricing flexibility for the incumbent LECs, this benefit of competition will not accrue to customers, and carrier access competition may raise industry costs rather than lower them.

C. The CMA Criteria

Classification of a wire center as a CMA would permit the LEC full pricing flexibility; prices and quantities of services supplied in CMAs would be removed from price cap regulation, and the LEC could sell services under contract-based access arrangements, much as AT&T is allowed to operate under Tariff 12. With such a rule in effect, potential entrants would have to believe that they were efficient relative to the LEC before they would rationally commit resources to build capacity in the wire center.

All services in a CMA would remain regulated as Title II communications services, available to all customers under tariff. Contract terms would be incorporated into tariffs as AT&T's are today. The LECs could also maintain general tariff rates for CMA services not purchased under

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[38]Prices can differ on average from incremental costs but much more prevalent is the difference between price and marginal cost for services supplied to large and small customers or in sparse and dense geographic areas.

[39]In addition, distortions in the relative prices of switched and special access can cause customers to make an inefficient choice between switched and dedicated access. To the extent that customers use access facilities whose costs are higher because their prices are lower, there will be a loss in first-order efficiency. Thus allocative inefficiency can lead to technical efficiency.

contract. All prices for competitive carrier access services would be priced at or above incremental cost. While it is inconceivable that contract-based prices would exceed the tariffed price--after all, why would anyone pay more than the sticker price?--it would be conceivable for the tariff prices to rise if there were no competitive pressure in the CMA. Unlike the TMA case, then, the pricing flexibility requested in a CMA could--in principle--lead to higher profits and prices through the exercise of market power.

The showing that must be made, then, is that the classification rules for a CMA are sufficient to ensure that LECs cannot set prices in a CMA that (i) exploit market power, (ii) unduly discriminate between customers, interexchange carriers, or CAPs, and (iii) are anticompetitive in the sense of being predatory, cross-subsidizing competitive services or implementing a price squeeze.

1. Market Power

The market power component of the USTA CMA proposal reduces to the following question: can a company whose facilities must be used to reach 75 percent of the carrier access demand in a wire center profitably raise its tariffed prices while simultaneously competing for the remaining 25 percent of the market through price reductions or contract-based tariff reductions for individual customers? Or, in other words, does the efficiency loss from not permitting the LEC to respond quickly to competitive prices outweigh the possible efficiency loss from the exercise of market power if the standards for classification as a CMA are inadequate? Clearly if CMAs were workably competitive, LEC pricing flexibility could not be used to exercise market power, and there would be no market power costs to weigh against the benefits from LEC pricing flexibility.

Rather than undertake a detailed, time-consuming study of market power in each LEC wire center, the USTA proposes a simpler structural measure of the competitiveness of a wire center, based on the availability of competitive alternatives to a substantial fraction (25 percent) of the current demand for carrier access services. What fraction of customer demand subject to competition

would be sufficient to ensure that the LEC would be unable to use the pricing flexibility in the proposal to raise prices and profits? There is no single magic proportion in the economics literature. The problem is that the factor that determines whether or not a price increase is profitable is the price elasticity of demand facing the LEC, and this factor combines elements of market share, the supply reaction of current and potential entrants, and the market price elasticity of demand. Thus market share cannot be taken in isolation and used to determine the degree to which a market is competitive: the market for integrated circuits is highly concentrated but highly competitive, for instance.

For the structural component of the calculation, some guidance is available from the economics literature, although the theoretical support for these rules of thumb is weak. The Merger Guidelines cites a market share of 35 percent for two merging firms above which:

> "merged firms may find it profitable to raise price and reduce joint output below the sum of their premerger outputs because the lost markups on the foregone sales may be outweighed by the resulting price increase on the merged base of sales," (p. 46)

and 35 percent is often cited as the Merger Guidelines standard for dominance.

Note, however, that the price increase contemplated in the Merger Guidelines is an increase over the previous, competitive level of prices. In the carrier access market, LEC prices currently exceed incremental cost by orders of magnitude. A price increase from current rates can be unprofitable for a LEC if only a very small fraction of demand changes suppliers. For example, suppose current carrier access prices are $1.00 and current demand is 100 units. An own-price elasticity of -3.00 is consistent with a markup of 33 percent of price over marginal cost,[40] and with these parameters, a price increase of 5 percent would not be profitable because the reduction in

[40]At its profit-maximizing level of output, the markup of price above marginal cost is equal to the negative of the inverse of the price elasticity of demand facing the firm. See, e.g., W. Landes and R. Posner, "Market Power in Antitrust Cases," *Harvard Law Review*, Vol 94, (1981).

demand of 15 units would cause the reduction in revenue to outweigh the reduction in costs from providing fewer units of service.[41] Under these conditions, a large potential reduction in output is not necessary to dissuade a profit-seeking firm from raising its price.

A second standard was proposed in the Cable Act of 1992, where a cable system was deemed to be subject to sufficient competition to justify complete deregulation if a competitor offered service to at least 50 percent and served more than 15 percent of the households in the franchise area. Factors that must be taken into account in comparing the Cable Act proportions to the USTA proposal for access charge reform include the following:

- carrier access is a wholesale service purchased primarily by three large, technically well-informed, sophisticated, and financially motivated customers, while cable is a retail service supplied to a large numbers of final customers,

- the Cable Act standards trigger deregulation of prices, whereas the USTA proposal only contemplates additional pricing flexibility,

- demand for carrier access service at customer locations varies tremendously from large businesses to residences, while demand for cable service by end users is similar at most customer locations,[42]

- Cable customers cannot produce cable services themselves, although there certainly are substitutes for some of the services that cable provides. On the other hand, IXCs can supply portions of carrier access service themselves, so that carrier access demand not served by the LEC is never counted in the marketplace, and

- the Cable Act criterion is one of three separate, sufficient conditions for a franchise area to be deemed effectively

[41]The reduction in revenue from 15 fewer units at a five-cent higher price is $10.75. Assuming constant marginal costs, the reduction in costs from 15 fewer units would be $10, so the price increase would cost the firm $0.75.

[42]Since the cable and access markets do not have the same relative proportion of demand per customer, a new cable provider would have to serve a large portion of the audience to capture a substantial share of the market, whereas an access provider could capture a large share of the market by serving a few, high-volume customers.

> competitive: if a franchise area passes any one of these tests, the Act prohibits price regulation.[43]

Competition for a homogeneous product sold at wholesale to a small number of firms competing downstream and capable of self-supply is likely to be more vigorous than competition between suppliers of a differentiated retail product sold to many small customers. A small change in price or service quality in the carrier access case would rapidly create large shifts in demand. In cable markets, customer reaction to such changes would be much slower. Thus the 50 percent availability standard in the Cable Act may be comparable in terms of competitiveness to the 25 percent availability standard in the USTA proposal. For similar reasons, it seems less necessary for competitors to have a particular market share in the carrier access market in order to justify price flexibility. For wholesale services sold to a small number of knowledgeable customers, availability of a competitive service to a customer is sufficient to restrict the pricing of the incumbent.

Thus the form of the standard for competitiveness in the Cable Act is quite consistent with the USTA proposal in the carrier access market: at least one sufficient condition depends heavily on the fraction of demand that a competitor can serve. The differences in numerical standards reflect differences in market conditions and policy contexts.

Of course, the usefulness of any particular structural measure for our purposes depends on other aspects of the market. In particular, where products are undifferentiated, where buyers are few and knowledgeable, where the service is an intermediate good and constitutes a large portion of the costs of production for a final good sold in competitive markets, and where buyers are capable

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[43]The Act provides that if a cable system is subject to "effective competition," its rates shall not be regulated by the Commission, the state, or the franchising authority. In turn, effective competition is defined to hold in the following circumstances: (A) fewer than 30 percent of the households in the franchise area subscribe to the cable service; (B) the franchise area is served by at least two unaffiliated multichannel video programming distributors offering comparable video programming to at least 50 percent of the households in the franchise area, and at least 15 percent of the households in the franchise area subscribe to the smaller of these two systems; or (C) a multichannel video provider operated by the franchising authority offers video programming to at least 50 percent of the households in that franchise area.

of self-supply, the fraction of output that can currently be supplied by a third-party competitor greatly overestimates the incumbent LEC's ability to raise price profitably.

To help size the structural question, let us calculate the market shares associated with the CMA 25 percent criterion. Suppose there were a single alternative supplier, for example, a CAP, and suppose that the LEC and the CAP were equally efficient and equally capable of selling service to any customer whom they could reach.[44] In this case, the USTA's 25 percent rule would result in the CAP serving about 12.5 percent of the market and the LEC serving the remaining 87.5 percent, assuming each were equally likely to serve customers that they both could reach. Even if the LEC were able to maintain a market share of 87.5 percent in this hypothetical CMA, there are several reasons why the USTA-proposed pricing flexibility would not necessarily lead to the exercise of market power and higher prices.

First, this market share measure includes only usage sold by the LEC and by third parties such as CAPs and, soon, cable companies. It does not--and cannot--measure the competitive response of interexchange carriers to price increases in circumstances where they have the same ability to interconnect with the LEC network as the CAPs and the cable companies. When an IXC plans its network expansion, it takes into account access savings that it can achieve by constructing facilities in certain locations and by leasing facilities from CAPs or LECs in other locations. The net effect of such cost-reducing behavior on the part of all interexchange carriers is to force the LECs to reduce carrier access charges or suffer the loss of components of carrier access demand. Hence as an input into the calculation of market power, measured market share in the carrier access market is biased downward.

[44]The assumption that the LEC and CAP would divide equally the customers they both could reach in a CMA may be conservative because the LEC is more heavily regulated than the CAP with respect to such important strategic parameters as contract review and tariffing delays.

Second, a workable method of implementing the proposal would be to calculate the fraction of observed carrier access demand that lies within a certain distance (e.g., 3,000 feet) of a CAP's backbone or feeder network. If that fraction exceeds 25 percent (and if a sufficient fraction of customers are actively seeking competitive alternatives to LEC services), the CMA would be classified as competitive. This method of measuring the proportion of demand having competitive alternatives would be conservative, because (i) it relies on necessarily incomplete knowledge of the CAPs' current and planned networks, and (ii) it ignores interexchange carrier networks.

Third, the measure ignores the presence of pockets within the wire center--such as business parks or large office complexes--for which competitive alternatives exist regardless of the distance to an existing CAP facility. Effectively, the proposed method simplifies the relationship between customer traffic volume and distance from the CAP's backbone network for which a direct connection would be cost effective, unless the IXC begins to use that network and provides directly connected end-user services.

Fourth, the measure ignores the presence of expanded interconnection which permits CAPs and interexchange carriers to use LEC facilities to aggregate traffic which is far from their networks. It also measures the potential success of competitors by the fraction of demand their networks currently reach rather than focussing on the fraction of demand that the CAP and IXC networks can reach economically using expanded interconnection where it is available.

Fifth, the 25 percent standard is conservative because it ignores traffic aggregation in determining whether a customer can obtain an alternative source of supply. If a LEC maintained access prices above their competitive level for small customers, aggregators and resellers would be able to profit by gathering traffic from small customers and sending it directly to the CAP or to the interexchange carrier. The relatively low cost of aggregating different customers' traffic in an environment where the LEC permits resale of its services places a strict limit on the LEC's ability

to charge high average access prices for serving small customers. Thus, with a relatively minor incremental investment, the competitor would be able to reach a higher percentage of the carrier access customers than would be suggested by the proposed 25 percent criterion.

Finally, the standard underestimates the fraction of traffic that can be served economically by the CAP because it omits traffic that could be served if the existing CAP network were extended in the most profitable directions within the wire center. While some customers may, individually, be too far away from the CAP's current network to warrant direct connection or too small to warrant aggregation, the fact that several such customers might be located along a single cable route would mean that interexchange carriers would have competitive alternatives to the LEC in supplying carrier access to those locations. Such customers need not be sufficiently large for direct connection and need not deal with a traffic aggregator. They would still have competitive alternatives for carrier access services because it would pay a CAP (or an interexchange carrier) to extend its network along a route that would serve enough such customers to be economical.[45]

In summary, there is no magic formula that provides a structural indicator that could signal when market power was a threat and when it was not. What is required is a standard of substantiality of competition, giving rise to the reasonable expectation of a potential for competition and an absence of barriers to entry or to interconnection. It is not necessary to have a successful competitor to constrain the possible market power of a regulated local exchange carrier, and a policy that artificially encouraged entry until successful competitors reached an arbitrary but substantial size would be entirely self-defeating. It is not at all clear that CAPs, cable companies--or, indeed, LECs have a truly permanent economic role in linking long distance companies with their customers. As different technologies as well as different firms enter these markets--we have in mind in particular

[45]Note that a relatively small route extension to a network already reaching 25 percent of the traffic in a wire center can provide competitive access alternatives to the bulk of the traffic.

radio-based access to the end user--regulation based on market shares of competitors could do unimaginable harm to telecommunications consumers. Billions in uneconomic investment could be encouraged, and pricing could then be distorted by regulation in order to protect that investment from competition.

2. Anticompetitive Pricing

Customer-specific prices and quantities tariffed under the pricing flexibility permitted in a CMA would be removed from the calculation of the SBI and API for price cap companies--and from the calculation of the historical revenue requirement for traditionally-regulated companies.[46] Hence price reductions to meet competitive offers would not reduce the LEC's API for carrier access services, so no change in price limits in less-competitive wire centers would be made possible by the price reductions to meet competition. As observed in our analysis of TMAs, this feature of the proposal ensures that the additional pricing flexibility requested in the USTA proposal will not increase the LECs' ability or incentive to subsidize its access services in competitive wire centers.[47]

Neither the ability nor the incentive to engage in other forms of anticompetitive pricing would be increased by the pricing flexibility requested in the USTA proposal, and eliminating the ability to cross-subsidize reduces the ability to engage in predatory pricing or an anticompetitive price squeeze. Both of these strategies require sacrifice of current profits in order to disadvantage rivals, and there is nothing in the requested pricing flexibility that would increase the likelihood that such a strategy could be profitable. The ordinary antitrust standards for predatory pricing and for a

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[46]Indeed, all prices and quantities in CMAs would be removed from the price cap calculations.

[47]The USTA proposal to eliminate sharing has merit. Indeed, eliminating sharing would not increase the LECs' ability or incentive to subsidize any access service but would provide better protection against cross-subsidization. By eliminating the upper and lower earnings bounds--a legacy of rate-of-return regulation--the incentive to artificially drive earnings below the lower threshold so that prices could be increased in the following year would disappear. Mechanically, eliminating sharing would open markets to streamlined regulation without requiring arbitrary cost allocation procedures to assign costs and investment to services.

vertical price squeeze are readily applied to the carrier access market. If prices of all competitive carrier access services equalled or exceeded their long run incremental costs, the LEC would meet the predatory pricing standard promulgated in *MCI Communications Corp. v. AT&T Co.*[48] Similarly, if the prices of competitive carrier access services equalled or exceeded the sum of their long run incremental costs plus the contribution foregone by providing any essential facilities to CAPs instead of retail service, the LEC would meet the *ALCOA* test for a vertical price squeeze.[49] In both cases, there is no reason to believe that classification of a wire center as a CMA would increase the likelihood that these anticompetitive pricing tactics would be profitable.

Finally, pricing flexibility is increased under the proposed plan, so within a CMA is it not likely that undue price discrimination will result? LECs could reduce prices under contract-based tariffs to large customers having competitive alternatives, and nothing compels them to make such discounts available to customers having no such alternatives. As in the TMA analysis however, the degree of price discrimination (if any) stemming from such flexibility is precisely the degree sanctioned by the emerging competitive market. Unless CAPs are price-regulated and forced to provide service ubiquitously--and unless IXCs were required to purchase access services from LECs and CAPs rather than engage in self-supply--such prices will be market-determined. Whether or not it is in the public interest, competition will bring lower prices to large business customers rather than uniformly lower prices to all consumers. Such pricing is an inevitable consequence of competitive entry, and no good will come from attempting to forestall this consequence by restricting the LEC's ability to charge lower prices to competitively-advantaged customers. The main effect of such an

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[48] 708 F.2d 1081 (7th Cir. 1982), *cert. denied.* 464 U.S. 891 (1983).

[49] *United States v. Aluminum Company of America*, 148 F.2d 416 (2d Cir. 1945). The extent to which LECs provide any essential facilities--beyond the right to interconnect--to CAPs is open to dispute.

attempt would be to lower efficiency by preventing LECs from competing where they are low-cost suppliers.

3. Efficiency gains from pricing flexibility

Restricting LEC pricing flexibility to competitive wire centers may to some extent help control the exercise of LEC market power, but the additional protection is not free. Moreover, timing is essential, and a policy that permits pricing freedom to respond to competitive entry after entry has occurred has very different consequences from one in which potential entrants are shown proper pricing signals. Again, in the Commission's words:

> "Although some parties suggest that we delay any increase in LEC special access pricing flexibility until competition has developed further, competition is already developing relatively rapidly in the urban markets and will only accelerate with the implementation of expanded interconnection. Thus, delay in providing LECs with any additional pricing flexibility appears unwarranted. This is particularly true with regard to the current study-area-wide rate averaging, which forces the LECs to price above cost in the urban areas where competition is most intense.
>
> Retention of study-area-wide rate averaging could create a pricing umbrella for the CAPs and deprive customers of the benefits of more vigorous competition. It could also undermine efficiency by preventing the LECs from competing effectively even when they are the low cost service provider. Handicapping the LECs in this fashion could also increase their competitive losses under expanded interconnection, bringing upward pressure to bear on LEC rates for less competitive service, including those used by residential customers."[50]

D. *Provisions for small LECs*

Two separate parts of the USTA proposal address the needs of small LECs. Pricing flexibility in a TMA is offered to non-price-cap-regulated LECs. As described above, they must either accept a band of pricing flexibility similar[51] to that for the price cap LECs or effectively

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[50]Special Access Order at ¶¶ 177-178.

[51]While the bands appear to be only half as wide as those for the price cap LECs, carriers only file every other year.

submit to a price-cap-like constraint on the ability of price changes to increase the revenue for an access category above its most recent revenue requirement. As a separate mechanism, USTA proposes that non-Tier 1 LECs be permitted to assign wire centers to TMA or CMA status if they are adjacent to a Tier 1 LEC wire center that meets the TMA or CMA criteria.

The first arrangement for small LECs makes economic sense, because it tries to impose the same type of constraint on the smaller LECs that price cap regulation would apply to the larger LECs. The contiguity arrangement requires a judgmental tradeoff between the cost of imposing filing requirements on small LECs and the cost of granting CMA pricing flexibility where competition is only in an adjacent wire center.

Of course, competitors do not need to serve the entire wire center in order to be able to serve individual large customers within a wire center. Picture a small-LEC wire center in a suburb, adjacent to a large-LEC urban wire center. A CAP network might choose to interconnect with the public switched network at the large-LEC wire center, because of customer density, facilities availability, or possibly lower prices. Wherever the CAP chooses to interconnect, a large office park or military base in the small-LEC wire center would be vulnerable to competition. Propinquity of high-volume customers to the CAP network determines whether or not those customers have competitive alternatives, and the location of the wire center at which the CAP interconnects has little effect on those customers' choices.

V. Conclusion

Carrier access prices were originally set using the fully allocated costing methods of the Part 69 rules. These prices initially bore no direct relation to economic costs, but with only limited competition for carrier access services, uneconomic pricing had only allocative efficiency and distributional consequences. Price cap regulation created additional pricing flexibility for these

services, and part of the rationale for price regulation was that it would permit a gradual, flexible transition from fully distributed cost-based prices to market prices within the limitations of the price cap plan. Technical change and expanded interconnection have increased the tempo of change in the carrier access market. With expanded interconnection, the market is, for all practical purposes from the standpoint of overall economic efficiency, opened for competition. Pricing flexibility for incumbent firms has thus become much more critical.

Competitors--CAPs, IXCs, cable companies, cellular and PCS providers--have different skills and interests, and they will seek out different niches of telecommunications markets to favor their particular advantages. Their plans may require different mixtures of purchasing interconnection services from incumbent LECs or each other, or providing interconnection transport, switching and possibly loops themselves. For technical economic efficiency, it is imperative that these decisions be made with a realistic view of the costs of the services that the incumbent, existing network can provide. Otherwise, costs will be sunk in uneconomic assets, and the lower prices promised by the Commission's open entry initiatives will be dissipated among telecommunications suppliers rather than distributed to customers.

In our view, the benefits from additional pricing flexibility for LEC carrier access services are important. The additional pricing flexibility requested for TMAs--beyond that currently granted through zone density prices and term and volume discounts--is small, and there is no reason to believe that such flexibility could have anticompetitive consequences. More flexibility is requested for CMAs, but the competitive standard is appropriately higher. Economics cannot tell if 25 percent is the right number compared with 20 or 30, but the structure of the proposal--grant flexibility when a substantial fraction of customer demand has a choice of suppliers--is exactly right. The proposal is conservative because measuring the fraction of customer demand sufficiently close to CAP facilities ignores the fact that (i) individual large customers can choose a CAP as their provider even